What is claimed is:

1. A substantially purified human small conductance calcium-activated potassium channel -3 (hKCa3/KCNN3) polypeptide comprising an amino acid sequence as set forth in SEQ ID NO:2.

2. An isolated polynucleotide encoding an hKCa3/KCNN3 polypeptide comprising an amino acid sequence as set forth in SEQ ID NO:2.

3. An isolated polynucleotide selected from the group consisting of:
   (a) SEQ ID NO:1, where T can also be a U;
   (b) nucleic acid sequences complementary to SEQ ID NO:1;
   (c) fragments of SEQ ID NO:1 that are at least 15 bases in length and will hybridize to DNA which encodes a polypeptide as set forth in SEQ ID NO:2.

4. The polynucleotide of claim 2, wherein said polynucleotide is operatively linked to an expression control sequence.

5. The polynucleotide of claim 4, wherein the expression control sequence is a promoter.

6. The polynucleotide of claim 5, wherein the promoter is tissue specific.

7. An expression vector containing the polynucleotide of claim 2.

8. The vector of claim 7, wherein the vector is a plasmid.

9. The vector of claim 7, wherein the vector is a viral vector.

10. The vector of claim 9, wherein the viral vector is a retroviral vector.

11. A host cell containing the vector of claim 7.

12. The host cell of claim 11, wherein the cell is a eukaryotic cell.

13. The host cell of claim 11, wherein the cell is a prokaryotic cell.

14. An antibody which binds to an hKCa3/KCNN3 polypeptide having an amino acid sequence as set forth in SEQ ID NO:2 or conservative variants thereof.

15. The antibody of claim 14, wherein the antibody is monoclonal.

16. The antibody of claim 14, wherein the antibody is polyclonal.

17. A method for identifying a compound which affects hKCa3/KCNN3, comprising:

(a) incubating the compound and a sample of interest, wherein said sample contains a member of the group consisting of hKCa3/KCNN3 polypeptide and hKCa3/KCNN3 polynucleotide, under conditions sufficient to allow the compound of interest to interact with the sample;

(b) determining the effect of the compound on the expression or activity of hKCa3/KCNN3.

18. The method of claim 17, wherein the sample of interest is a host cell containing an expression vector comprising an isolated polynucleotide encoding the hKCa3/KCNN3 polypeptide encoding SEQ ID NO:2.

19. The method of claim 17, wherein the sample of interest is a cell line expressing an hKCa3/KCNN3 polypeptide.

20. The method of claim 17, wherein the sample of interest is hKCa3/KCNN3 polypeptide having an amino acid sequence as set forth in SEQ ID NO:2.

21. The method of claim 17, wherein the sample of interest is a polynucleotide encoding SEQ ID NO:2.

22. The method of claim 17, wherein the compound is selected from the group consisting of a peptide, peptidomimetic, chemical compound, and a pharmaceutical compound.

23. A method for diagnosis of a subject having or at risk of having a hKCa3/KCNN3-associated disorder, comprising the steps of :

(a) contacting a sample from the subject suspected of having or at risk of having a hKCa3/KCNN3-associated disorder with a reagent that binds to hKCa3/KCNN3,

(b) detecting binding of the reagent to hKCa3/KCNN3,

(c) comparing the binding of the reagent to said sample with the binding of the reagent to a control sample.

24. The method of claim 21, wherein the sample is nucleic acid.

25. The method of claim 24, further comprising amplifying the nucleic acid of the sample prior to contacting a sample from the subject suspected of having a hKCa3/KCNN3 disorder with a reagent that binds to hKCa3/KCNN3.

26. The method of claim 21, wherein the sample is a biopsy, blood, plasma, serum, or urine.

27. The method of claim 21, wherein the disorder is selected from the group consisting of a neuropsychiatric, neurological, neuromuscular, and immunological disorder.

28. The method of claim 21, wherein the disorder is bipolar disease.

29. The method of claim 21, wherein the disorder is schizophrenia.

30. The method of claim 21, wherein the reagent is an antibody which binds to hKCa3/KCNN3 polypeptide.

31. The method of claim 21, wherein the reagent is a polynucleotide which encodes SEQ ID NO:2.

32. The method of claim 21, wherein the reagent is detectably labeled.

33. The method of claim 32, wherein the detectable label is selected from the group consisting of a radioisotope, a fluorescent compound, a bioluminescent compound and a chemiluminescent compound.

34. A method of diagnosis of a subject having a hKCa3/KCNN3-associated or at risk of having a hKCa3/KCNN3-associated disorder comprising:

(a) identifying the presence of a trinucleotide repeat in the 5'-coding region of the hKCa3/KCNN3 gene; and

(b) comparing the trinucleotide repeat region from the subject with the same region from a normal subject or a standard sample, thereby providing a diagnosis of the subject.

35. The method of claim 34, wherein the disorder is selected from the group consisting of a neuropsychiatric, neurological, neuromuscular, and immunological disorder.

36. The method of claim 34, wherein the disorder is schizophrenia.

37. The method of claim 34, wherein the disorder is bipolar disease.

38. A method of determining the prognosis of a subject with an hKCa3/KCNN3-associated disorder, comprising:

(a) obtaining a sample from said subject,

(b) determining the number of a trinucleotide CAG/CTG repeats in the 5'-coding region of the hKCa3/KCNN3 gene;

(c) correlating the number of a trinucleotide repeats in the 5'-coding region of the hKCa3/KCNN3 gene in said subject with the prognosis of the subject.

39. The method of claim 38, wherein the disorder is selected from the group consisting of a neuropsychiatric, neurological, neuromuscular, and immunological disorder.

40. The method of claim 38, wherein said disorder is schizophrenia.

41. The method of claim 38, wherein said disorder is bipolar disease.

42. The method of claim 38, wherein said sample consists of a biopsy, blood, plasma, or urine sample obtained from said subject.

43. The method of determining a treatment regimen of neuropsychiatric, neurological, neuromuscular or immunological disorders in a subject with an hKCa3/KCNN3-associated disorder, comprising:

(a) obtaining a sample from said subject,

(b) determining the number of a trinucleotide CAG/CTG repeats in the 5'-coding region of the hKCa3/KCNN3 gene;

(c) correlating the number of a trinucleotide repeats in the 5'-coding region of the hKCa3/KCNN3 gene in said subject with the prognosis of the subject.

44. The method of claim 43, wherein the disorder is selected from the group consisting of a neuopsychiatric, neurological, neuromuscular, and immunological disorder.

45. The method of claim 43, wherein said disorder is schizophrenia.

46. The method of claim 43, wherein said disorder is bipolar disease.

47. The method of claim 43, wherein said sample consists of a biopsy, blood, plasma, or urine sample obtained from said subject.

48. A method for determining the prognosis of a subject diagnosed with an hKCa3/KCNN3-associated disorder, comprising:

obtaining a sample from said subject,

determining the alleles of hKCa3 expressed in said sample from said subject, and

correlating the alleles with the prognosis of said subject.

49. The method of claim 48, wherein the disorder is selected from the group consisting of a neuopsychiatric, neurological, neuromuscular, and immunological disorder.

50. The method of claim 48, wherein said disorder is schizophrenia.

51. The method of claim 48, wherein said disorder is bipolar disease.

52. The method of claim 48, wherein said sample is a member selected from the group consisting of a biopsy, blood, plasma, or urine sample

53. A method for treating a subject having or at risk of having an hKCa3/KCNN3-associated or hKCa3/KCNN3-related disorder, comprising administering to the subject a therapeutically effective amount of a polypeptide of SEQ ID NO:2.

54. The method of claim 53, wherein the disorder is selected from the group consisting of a neuopsychiatric, neurological, neuromuscular, and immunological disorder.

55. A method of treating a subject having or at risk of having an hKCa3/KCNN3-associated or hKCa3/KCNN3-related disorder, comprising administering to the subject a therapeutically effective amount of a polynucleotide encoding SEQ ID NO:2.

56. The method of claim 55, wherein the disorder is selected from the group consisting of a neuopsychiatric, neurological, neuromuscular, and immunological disorder.

57. A method of treating a patient having or at risk of having an hKCa3/KCNN3-associated or hKCa3/KCNN3-related disorder, the method comprising:

introducing into a cell of a patient having an hKCa3/KCNN3-associated disorder a nucleotide sequence encoding a SEQ ID NO:2 and a eukaryotic promoting sequence operably linked thereto, said introducing resulting in the genetic transformation of the cell so that the nucleotide sequence expresses SEQ ID NO:2.

58. The method of claim 57, wherein the disorder is selected from the group consisting of a neuopsychiatric, neurological, neuromuscular, and immunological disorder.

59. A composition for administration of hKCa3/KCNN3 to a patient having an hKCa3/KCNN3-associated or hKCa3/KCNN3-related disorder comprising:

(a) a therapeutically effective amount of a substantially pure hKCa3/KCNN3 polypeptide; and

(b) a pharmaceutically acceptable carrier.

60. The composition of claim 55, wherein the carrier is a liposome.

61. A kit useful for detecting the presence of hKCa3/KCNN3 in a sample from a subject having a hKCa3/KCNN3-associated or hKCa3/KCNN3-related disorder, the kit comprising: carrier means being compartmentalized to receive in close confinement therein one or more containers comprising a container containing an antibody which specifically binds to hKCa3/KCNN3.

62. A kit useful for the detection of a target nucleic acid sequence in a sample from a subject having a hKCa3/KCNN3-associated or hKCa3/KCNN3-related disorder, wherein the presence of the target nucleic acid sequence in the sample is indicative of having or predisposed to having a human hKCa3/KCNN3-associated disorder, the kit comprising: carrier means being compartmentalized to receive in close confinement therein one or more containers comprising a container containing oligonucleotides which hybridize to hKCa3/KCNN3 nucleic acid sequences.

63. A transgenic nonhuman animal having a phenotype characterized by expression of hKCa3/KCNN3, otherwise not naturally occurring in the animal, the phenotype being conferred by a transgene contained in the somatic and germ cells of the animal, the transgene comprising a nucleic acid sequence which encodes hKCa3/KCNN3.

64. The transgenic nonhuman animal of claim 63, wherein the animal is a mouse.